# ABSTRAK

*Biodrying* adalah proses penguapan konvektif dengan memanfaatkan panas yang dihasilkan dari reaksi aerobik komponen biologis dan dibantu dengan aerasi. *Biodrying* dapat menjadi alternatif untuk pengolahan sampah organik yang memiliki kadar air tinggi. Penelitian *biodrying* dalam skala laboratorium belum banyak dikembangkan dikarenakan mekanisme yang kompleks. Peneliti mengembangkan proses *biodrying* dengan variasi penutup reaktor dan debit aerasi untuk menganalisis dan menemukan variabel yang optimum dalam pencapaian suhu, penurunan kadar air, penurunan volume, dan penurunan massa sampah organik. Variasi penutup reaktor menggunakan terpal dan geotekstil dengan variasi debit aerasi 6 l/menit, 12 l/menit, dan 18 l/menit. Hasil penelitian menunjukkan bahwa variasi penutup reaktor dan debit aerasi mempunyai pengaruh terhadap suhu, penurunan kadar air, penurunan volume, dan penurunan massa. Semakin permeabel penutup reaktor dan debit aerasi yang rendah, suhu tinggi dapat dicapai dan penurunan kadar air, volume, dan massa dapat memenuhi batas optimum. Variasi penutup reaktor dan debit aerasi yang optimum dari hasil penelitian adalah penutup geotekstil dan debit aerasi 6 l/menit. Suhu tertinggi yang dicapai sebesar 57 $^{o}$C pada hari pertama, penurunan kadar air, penurunan volume, dan penurunan massa total setelah 30 hari proses *biodrying* masing-masing sebesar 30,55%; 59,75%; dan 55,12%.

**Kata Kunci :** Penutup Reaktor, Debit Aerasi, *Biodrying*

# ABSTRACT

*Biodrying is a convective evaporation process, which utilizes the biological heat developed from the aerobic reactions of organic components and supported with aeration. Biodrying may be an alternative for the processing of organic waste that has a high water content. Laboratory scale of biodrying process has not been much developed due to a complex mechanism. This study developed biodrying process by using variations of cover and aeration rate to find the optimum variables in the achievement of the optimum temperature, moisture content reduction, volume reduction, and mass reduction of organic waste. The variation of cover using tarps and geotextile with aeration rate were 6 l/min, 12 l/min, and 18 l/min. The results showed that the variation of cover and aeration rate have influence to temperature, moisture content reduction, volume reduction, and mass reduction. The more permeable of cover and the low aeration rate, high temperatures achieved and reduction in moisture content, volume, and mass reached the optimum limit. The optimum results of cover and aeration rate variation on this study were geotextile cover and 6 l/min of aeration rate. The highest temperature of 57 °C is reached on the first day, total moisture content reduction, volume reduction, and mass reduction were 30.55%; 59.75%; and 55.12% respectively, after biodrying processes for 30 days.*



***Keywords** : Cover, Aeration Rate, Biodrying*